Provider Link: Facilitating Healthcare Providers' Support of Web-based Smoking Cessation Efforts via Secure E-mail

Kashyap Trivedi, M.D., Aditya Bansod, Dan Frysinger, Dawna Perkins, Jeannette Cabanting, and Leslie Lenert, M.D., M.S., Department of Medicine, University of California, San Diego.

Abstract:

Provider Link is a system designed to enhance the efficacy of a web-based intervention for smoking cessation by helping health care providers support their patients via e-mail. The system is designed to maintain confidentiality while allowing providers rapid access to patient data collected over the web. A trial of Provider Link is currently underway.

Despite widespread public awareness about the dangers of smoking, 24% of Americans smoke[1]. Most want to quit, but of the 30% who attempt quitting each year, only 20% seek assistance[1]. Those trying to quit without professional support often fail to become tobacco-free in the long term. In addition, more individuals are seeking support and advice on the Internet, a trend growing at a rate of 70% per year[2]. For smokers looking to quit, the Internet is emerging as a promising medium for delivering tailored and reliable information on stopping tobacco use.

We are currently studying the effects of a web-based program (https://stopsmoking.ucsf.edu) that uses cognitive behavioral tools with Internet and e-mail instruction to help enrollees quit smoking[3]. Results from a pilot study of this intervention demonstrated a 30-day quit rate of over 16%[3]. Given the effectiveness of physician involvement in a patient's quit effort[1], we sought to expand this web intervention by adding a module called "Provider Link" that would help health care providers such as physicians and nurse practitioners give timely and personalized support for their patients' quit efforts.

We based our design on the results of semi-structured interviews with general internists at the San Diego VA Hospital, who stated that customizability, convenience, and security were paramount for widely implementing this intervention. Our system allows providers to freely edit the pre-written patient e-mails as well as send these messages securely. This intervention is also easy to use—providers can dispatch e-mails to their patients in as few as two mouse clicks.

Patients enrolling in this system will log-on to a secure web site and answer questions about their demographics, smoking history, and mood. The ID and password that they will receive will give them access to our educational materials and self-monitoring tools. At specific times during their quit effort, each patient will receive a customized e-mail from their health care provider based upon that individual's questionnaire responses and usage of our website.

The transfer of information is summarized in **Fig.1**. Data submitted by a patient (**#1**) will be queried by our e-mail server (**#2**), which will generate and securely send (**#3**) an e-mail to the secure VA network. After internal routing within the VA network (**#4, #5**), the provider will be able to view the e-mail message using an HTML-enabled e-mail client (**#6**). The provider can then modify and personalize the e-mail text before submitting the message (#**7,#8**), which the recipient can view from their e-mail account (**#9**).
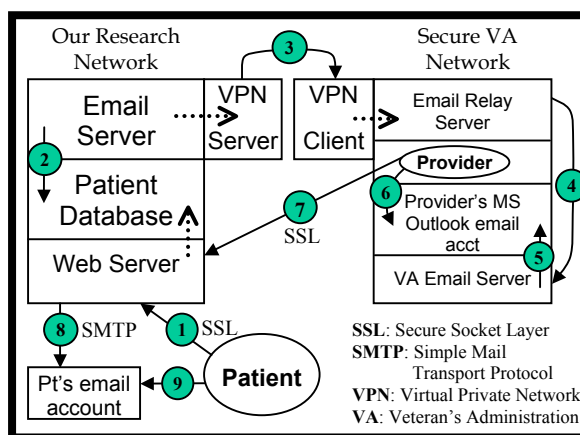
Figure 1. Schematic of Provider-Link Infrastructure

The patient-physician relationship continues to be important for affecting long-term behavioral change. To take advantage of this, we have designed an intervention whereby patients can receive periodic tailored e-mails from their health provider supporting their quit effort. This intervention aims to combine the convenience of the Internet, the structure and authority of an application developed at a research institution, and the benefits of physician interaction. We believe this application is a novel way for smokers to securely obtain customized quitting assistance from their health care provider over the web.

References:
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